REMARKS

Reconsideration is respectfully requested in view of the foregoing amendments and the remarks which follow.

By this amendment, Applicant has cancelled claims 34-49 and has added new claims 50-70. The newly added claims are fully supported in the as-filed specification.

Applicant takes note that the Examiner has rejoined process claims 34-38 and composition claim 49.

Claims 34-49 stand rejected under §112, second paragraph, for indefiniteness. This rejection is respectfully traversed.

In new claim 50, formerly claim 34, step (i) has been split into steps (i) and (ii). The wording has been simplified in all the steps and in particular in step (iii) to point out the process of the invention with greater specificity.

Also in claim 50, the former terms "soluble" or "solubilizable substances" has been deleted and replaced by "soluble in aqueous solutions". (The basis for this change is to be found in the specification at page 5, line 29.)

In step (iii) of claim 50, it has been clarified that the loading of the pharmaceutical or nutritional substance is obtained by incubation of the microorganisms emptied by the hypertonic solution in step (i) and recovered in step (ii), and a hypo- or isotonic aqueous solution comprising the pharmaceutical or nutritional substance.

In claim 50, the term "substances having pharmacologic activity" has been replaced by "pharmacological substances and/or nutritional substances". The basis is to be found in the specification, at p. 5, lines 22-24.

The optional step of further chemical or physical inactivation (formerly step iii) of claim 34

has been redrafted as a dependent claim (new claim 51).

The term soluble (i.e. "*capable of being dissolved*", according to McGraw-Hill, Scientific and Technical Encyclopedic Dictionary, II ed., enclosed) has been clarified by adding "soluble in an aqueous solution".

The term "inactivated microorganism" would be clear to one of ordinary skill in the art when reading the claimed process, since he would know and appreciate that treatment with a hypertonic solution determines extrusion of the endocellular mass and therefore inactivation of the microorganism. The meaning of this term has also been defined in the specification at p 7, lines 5-15.

The term "active principles of vegetable origin" is defined specifically at page 6, lines 1-4 of the specification. Accordingly, new claim 56 is definite since the specification indicates "active principles of vegetable origin" are a species of nutritional substances.

References to the process steps in the new dependent claims have been modified in accordance with the foregoing.

In claim 52, corresponding to claim 42 as filed on February 11, 2005, the term "characterized in that" has been replaced by "wherein".

Product-by-process claims 66-70 have been added for microorganisms produced according to the process of the invention and filled only with pharmacological substances selected from antibiotics, antibacterial and/or with nutritional substances. The basis for these amendments are found throughout the specification and in the process claims aimed at producing the microorganisms filled with the specific substance.

Claims 34-48 and claim 49 stand rejected under 35 U.S.C. §102(b) as anticipated by Pannell (US Patent 5,288,632) with evidence by Gruenwald (PDR *for Herbal Medicines*) and Sagar

(WO9422572). Claims 34-48 and 49 also stand rejected under 35 U.S.C. §103(a) over the aforementioned references. These rejections are respectfully traversed.

The Applicant takes note that the present set of claims recites a process comprising the following discrete steps i) - iii).

At col. 2, lines 26 to 47, Pannell describes his process as follows:

"The present invention provides a method for the production of a microbially encapsulated material, comprising:

treating a grown intact microbe such as a fungus, bacterium or alga, having a microbial lipid content of significantly less than 40% by weight, with an encapsulatable material in liquid form which is capable of diffusing into the microbial cell without causing total lysation thereof,

said treatment comprising contiguously mixing (i.e. mixing to attain contiguous contact) the microbe with the encapsulatable material liquid in the presence of an aqueous medium to produce an aqueous emulsion of the encapsulatable material liquid and to maintain the aqueous emulsion during the mixing,

whereby the encapsulatable material liquid is absorbed by the microbe by diffusion across the microbial cell wall and the encapsulatable material is retained passively within the microbe,

the method being performed in the absence of treatment of the microbe with a lipid-extending substance or a plasmolyser."

Applicant wishes to highlight and bring to the Examiner's attention that in Pannell neither hypertonic treatment nor separation of the endocellular mass (respectively step i) and ii) of independent process claim 50, formerly claim 34, is disclosed, taught, or even mentioned in the

cited reference.

According to the patentability requirements set forth in MPEP 2131, it states that: *"To anticipate a claim, the reference must teach every element of the claim"*.

Since Pannell does not teach steps i) and ii) of claim 50, the Examiner has failed to make out a *prima facie* case of anticipation.

In fact, the Pannell reference, as demonstrated above, neither provides any indication for the hypertonic treatment nor for the separation of the endocellular mass performed on the microorganism, as defined in step i) and ii) of the claimed process according to the present invention. Pannell shows the encapsulation of different substances in fungi or yeast by simply mixing the solubilized material to be encapsulated with the yeast. Pannell's microorganisms are not first emptied, but the substance simply *allowed to diffuse* into the microbial cell wall (see col. 2, l. 29-47).

As recited in the claims, and also in the various replies to the Examiner's Office Actions, steps i) and ii) are not dispensable. On the contrary, they represent an essential and distinct feature of the process, since the net resulting product, microorganisms devoid of their own endocellular content (just empty cell walls), are to be filled or loaded in step iii) with pharmaceutically active substances.

The Sagar and Gruenwald references neither provide any suggestion for producing a microorganism by the method claimed herein, nor for the introduction of the above indicated steps (hypertonic treatment and separation of the endocellular mass) into the process for the preparation of microorganisms.

In fact, Sagar describes a completely different process for encapsulating a substance which is performed by, "*passing a solution into the biocapsule, then effecting a change in the*

biocapsule/solution system such that the substance remains encapsulated while a solvent escapes." (Sagar, p. 2, lines 1-5.) Such a change may comprise a physical change to the biocapsule/solution, such as an increase in solution concentration or a decrease in solubility, or again, evaporation of the solvent.

Even without detailing the nature of the "*physical change*", the Examiner will note that Sagar teaches performing this step on the mix of biocapsule and solution comprising an active substance, while the claimed invention provides for the treatment with a hypertonic solution before the microorganism came in contact with the solution comprising pharmaceutically active substances.

Applicant again stresses that the teaching of a hypertonic treatment to remove the endocellular mass of a microorganism to be filled with pharmaceutical substances is neither disclosed in Pannell (which uses diffusion), nor in Sagar, nor in their combination.

As far as Grunwald is concerned, the Applicant fails to see any teaching or suggestion on how to produce microorganisms filled-up with pharmaceutically active substances, i.e.,. there is no suggestion of how to treat the microorganism in order to fill them up with active substances.

It is respectfully submitted that both the rejections under §102(a) and 103(a) have been overcome and should be withdrawn.

Insofar as the patentability of the product-by-process claims, 66-70, is concerned, such claims have been made dependent only from process claims comprising pharmaceutical substance selected from the group consisting of antibiotics, anti-inflammatory, antibacterial, antiviral, antifungal and antiparasitic agents or vaccines, or specifically to a microorganism comprising oxytetracyclin or sulphadimetoxin, respectively, as an antibiotic and as an antibacterial, or to a microorganism comprising nutritional substances selected from among sodium quercetin, catechin,

isocatechin, aliphatic polyalcohols, polyphenols, flavans, cyanins, resveratrol or hyperic acid or wherein the nutritional substance is a vitamin such as cyanocobalamin (vitamin B12), folic acid, thiamine (Vitamin B1), α-tocopherol or ascorbic acid.

The above microorganisms are novel over Pannell and over Sagar in view of Grunwald, since microrganisms comprising the above cited substances have not been disclosed in the prior art documents, and **rutinoid filled microorganisms** have been **deleted** from the claimed product-by-process.

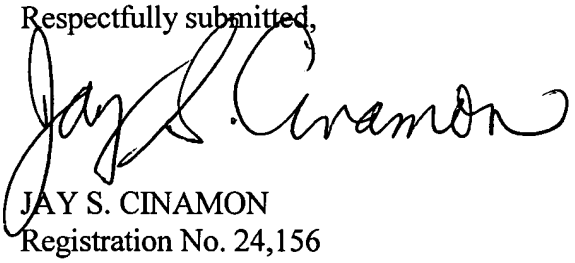
In fact, Sagar only discloses biocapsules containing amino acids and Pannell discloses microorganisms loaded with benzaldehyde and essential oils (see col. 3, lines 31-46).

Therefore, product-by-process claims 65-69 reading on specific embodiments of the process, corresponding respectively to claims 53-58 are both novel and unobvious over the prior art.

The issuance of a Notice of Allowance is respectfully solicited.

Please charge any fees which may be due, and which have not been submitted herewith, to our Deposit Account No. 01-0035.

Respectfully submitted,



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